



Department of Education
Student Financial Assistance
Financial Partners Channel

FFEL System Retirement Analysis



Executive Report of the
Integrated Product Team
(IPT)

April 2001

Table of Contents

I.	Executive Summary	1
	Overall Findings	
	Recommendations	
	Risk Summary	
II.	Project Overview.....	3
	Background	
	Scope and Approach	
III.	Inventory Summary and Analysis	4
	Functional Analysis	
	Technical Analysis	
IV.	Business Analysis	8
	Costs Analysis – Current	
	Costs Analysis – Projected	
	Recommendations	
V.	Risk Assessment.....	12
	Objective and Scope	
	Risk Factors and Criteria	
	Risk Analysis	
VI.	Next Steps	15
VII.	Appendices	
	External Partners and Interfaces to the FFEL System	A-1
	Summary of Costs and Savings	B-1
	FFEL Retirement Timeline.....	C-1
VIII.	Attachments.....	Project Management Files, Office of the Financial Partners General Manager
	FFEL Retirement IPT Charter	
	FFEL System Inventory	
	FFEL Retirement Plan	
	Integrated Product Team Working Papers	

I. EXECUTIVE SUMMARY

The primary goal of the FFEL System Retirement Analysis effort was to provide the business justification and plan for retiring the Financial Partners (FP) components of the FFEL System. The IPT, charged with achieving this goal, has completed this effort. Below is the executive summary of this effort that presents the IPT's overall findings, recommendations, and summary of risks.

Overall Findings

One of SFA's major objectives is to reduce unit cost. One means of achieving this objective is to retire the FFEL System and transfer required functionality to more modern SFA systems such as the Financial Management System (FMS) and the improved Debt Collections System (DCS). SFA's starting point is to retire the FP components of FFEL and transfer this functionality to FMS.

FP targeted November 1, 2001 to retire the FFEL FP components, as it assumed required Lender functionality would be transferred to FMS based on the modernization Blueprint schedule. The results of the analysis indicate a minimum of six to nine months is needed to analyze, design, build, test, and deploy the Lender Payment Process Redesign functionality to FMS. The Lender implementation to FMS represents the key dependency for retiring the remaining FP components of FFEL. To ensure business integrity and as a matter of prudent business practice, **the Lender redesign effort will be completed by April 2002. The FP components of FFEL will be retired by July 2002.**

Retiring the FP components of FFEL will result in significant savings for SFA. For example, in FY 2000 SFA spent over \$9.75 million to support the FP components of FFEL. Based on this figure, **the IPT estimates SFA can save \$3 - 4 million annually** (approximately 30%-40%) by retiring the FFEL FP components.

Recommendations

We strongly recommend that SFA begin execution of several key actions. This activity will allow SFA to realize the potential savings outlined above. Failure to do all of these recommendations in a timely manner will result in lower savings. SFA recommendations include:

- ◆ Cease operating the GA components (batch jobs and programs) of FFEL by June 2001 following the completion of the adjustment period in order to continue realizing these costs savings.
- ◆ Re-compete the current Raytheon FFEL contract by July 2001 to separate the Financial Partners and Students Channel costs and to determine the allocation of the shared costs.
- ◆ Re-structure the CSC VDC contract/procedures by July 2001 to fairly allocate the costs so that cost savings from retiring the FP component batch jobs and programs can be realized.
- ◆ Migrate Lender functionality to FMS (Lender Payment Process Redesign) by April 2002 in order to process FY02 second quarter data (January 2002 – March 2002).
- ◆ Retire the GA and Lender components (batch jobs and programs) of FFEL by July 2002 following an adjustment period in order to begin realizing additional cost savings.
- ◆ Retain Historical data in the current FFEL environment until July 2002 to provide access using the current screens (on-line programs) during the FFEL System retirement transitional period.
- ◆ Complete the DMCS Reengineering effort by July 2002 in order to realize savings in FY 2002 and ensure the ability to fully retire the FFEL System by the completion of the FP component retirement.

Risks Summary

These recommendations will help SFA complete two major activities: 1) Migrate Lender functionality from FFEL to FMS and 2) Retire FP components of FFEL. Completing these activities comprise a minimal risk to SFA. The following risks were considered:

- ◆ SFA staff and external partners may have issues with performing current business functions.
- ◆ FP external partners may no longer have access to GA and Lender system interfaces, and would require interfacing with FMS for similar information.
- ◆ Some non-standard, unscheduled production jobs (temp) may be overlooked.
- ◆ Historical data still resident in FFEL may not be validated, accessible or easily recoverable.
- ◆ Restoring the current FFEL system production environment may take more time.
- ◆ SFA may incur cost and liability from inefficient technical oversight of its system contracts.

The risk escalates significantly if SFA chooses to continue to operate the FP components on FFEL, and attempts to:

- ◆ Apply required system software upgrades (continue operations) or upgrade/modify functionality (expand functionality).
- ◆ Recover and restore system software to the previous state of functionality after porting to a different mainframe environment (portability).

II. PROJECT OVERVIEW

Background

The Financial Partners (FP) Channel is continuing with a major Modernization change program in the business, technical and organizational aspects of its operations. The overall goal is to realize the efficiency of core processes and functions while improving partner and employee satisfaction levels. A significant part of this effort involves the review and planning associated with the retirement of the Federal Family Education Loan (FFEL) System. FFEL, comprised of four systems: Guaranty Agency (GA), Lender and School (Lender), Support and Maintenance (Support), and the Debt Management and Collections System (DMCS), has a current contract expiration date of September 30, 2001 with up to 15 months in extension options through December 2002.

The objective of the FFEL System Retirement Analysis project was to identify, inventory, analyze and prioritize critical functional components of the FFEL System in order to replace some or all of those components. The goal is for SFA to retire the existing FFEL System and transfer required FFEL functionality to more modern SFA systems (e.g., Financial Management System (FMS), Data Mart, improved Debt Collections System, etc.). The “original” target date for retiring the first group of functions, FP’s components of FFEL, was November 2001.

Scope and Approach

The FFEL Retirement Analysis project involved four stages of work: 1) Integrated Project Team (IPT) Setup, 2) Analysis and Inventory Development, 3) Business Analysis and Risk Assessment, and 4) Retirement Planning. Although the IPT reviewed the FFEL DCS components, the IPT focused primarily on the FP components.

The project commenced with the development of an IPT Charter and structure to support all phases of the FFEL System Retirement effort. The IPT Charter defined a “teaming environment” where the IPT engaged parties from Financial Partners, Students, eCAD/CIO, CFO, Raytheon and other affected areas. The IPT process focused on organizing the team, reviewing the FFEL System, identifying and resolving issues, and conducting meetings and work sessions that allowed subject matter experts to discuss FFEL functional and technical information in depth.

The IPT team identified all components (jobs, temporary jobs, batch programs, on-line programs and temporary programs, applications) of the FFEL System and captured them in the FFEL inventory. Each subsystem area subject matter expert validated the business needs, completeness and accuracy of FFEL process functionality.

The IPT obtained validated job and program level information from Raytheon, researched data contained within the FFEL Library, and retrieved documents developed from other Modernization Partner projects. In addition, the IPT obtained information on historical data through meetings with SFA individuals who have current and historical system knowledge. Information from meetings with these individuals has been documented and is available for review. The minutes from the Core Team working sessions and the Expanded Team meetings were provided to the IPT and SFA representatives. The IPT Working Papers contain the documents that were identified or generated during this effort.

III. INVENTORY SUMMARY AND ANALYSIS

The FFEL System was developed in the 1970's and is currently maintained under contract with Raytheon E-Systems. The FFEL System has evolved, and increased in size and complexity as functionality was added to respond to changing requirements. This section presents the functional and technical analysis of the FFEL System.

Functional Analysis

The FFEL IPT was charged with engaging the appropriate resources to conduct an in-depth analysis of the functionality of FFEL, utilizing a system inventory to capture the functionality. Below is a summary of the key drivers and results of this analysis.

- ◆ The IPT discovered major gaps in the FFEL Library information including sub-system information that does not exist within the following systems: Lender (7), DMCS (61), and Support/Maint. (36).
- ◆ The IPT discovered the FFEL environment job and program level documentation could not be easily obtained through the mainframe access screens. This approach requires a time consuming file transfer process. As a result, the IPT undertook an intensive work effort to capture and store the information in a descriptive format to complete the review and analysis.
- ◆ The IPT learned that the FFEL System contractor required additional time to research and extract FFEL System information.
- ◆ The IPT learned that **1,605 temporary batch jobs and programs** were not required to be documented and require a review of the source code comments to determine program functionality.
- ◆ The IPT discovered that FP (GA and Lender system) exclusively utilizes 32% of the programs and 39% of the lines of code in the production environment.

Functionality including interfaces needed to support the respective areas will be transferred to new target environments. Appendix A illustrates the external interfaces of the FFEL System while Figure 1 illustrates the target environments.

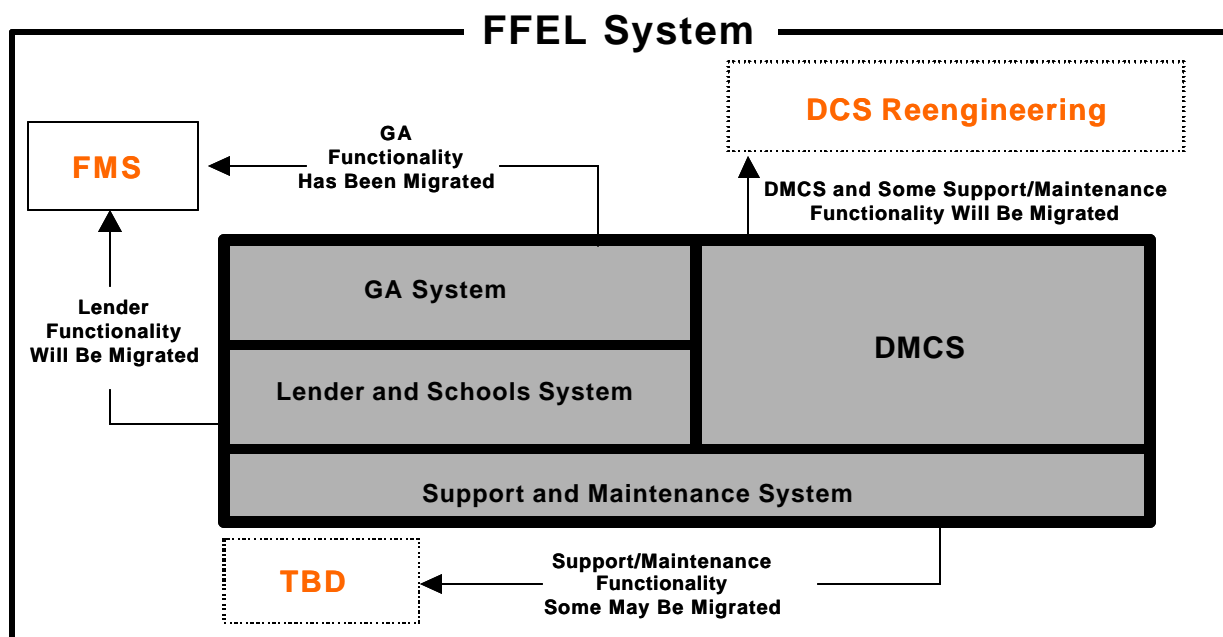


Figure 1: FFEL System

There are four major components of the FFEL System. The FP Channel directs the jobs run in the production schedule associated with the GA system and the Lender system. The Students Channel directs the jobs run in the production schedule associated with the DMCS. The Support system has jobs and programs whose functions affect all the major FFEL Systems, thus, responsibilities for these jobs and programs are shared by both channels. A detail description of each of the subsystems is located in the FFEL Inventory. The following is a summary description of the FFEL functionality by major system.

- ◆ **The GA System** is utilized solely by the FP channel and received information and requests from the GA community. The GA system processed and provided monthly (Form 1189), quarterly (Form 1130) and Yearly (Form 704) reports of activity. The two major subsystems of this component include:
 - GA Funds (GAF) - processed the GA monthly Claims and Collections Report (ED Form 1189).
 - GA Quarterly Reporting (GAQ) - collected, processed and reported data collected on the ED Form 1130 submitted by a GA to ED.
- ◆ **The Lender System** receives information from the Lender community and processes federal claims, interest payments, and maintains institution eligibility records using three subsystems solely owned by FP. The three major subsystems of this component include:
 - Federal Claims and Loan Assignments (CLM) - supports the servicing activities related to claims submitted for the Federal Insured Student Loan (FISL) program. **Although SFA discontinued the granting of new FISL loans in 1984, many of these loans are still active and require servicing.**
 - Interest Payment (INT) - used to administer interest benefits and special allowances paid under statutory authority and regulatory criteria of ED.
 - School and Lender (SAL) - enables the Student Financial Assistance Program (SFAP) to store, retrieve, and update the identification information and eligibility status of these institutions.
- ◆ **The Support System** processes information from the GA, Lender and DMCS components of FFEL along with providing support and maintenance programs using 13 subsystems. The system also is used to provide support and maintenance utilities programs, quality control, archiving of DMCS information, and management reports. Following the migration of the Lender system functionality to FMS, the Support subsystems will be solely managed by and in support of the DMCS.
- ◆ **The Debt Management and Collection System (DMCS)** This is the largest component of FFEL, providing a vehicle for the storage, retrieval, and editing of debtor information. The DMCS maintains data on outstanding financial aid debts using 19 subsystems solely owned by the Students Channel. The Students Channel Debt Collection Services (DCS) area uses this information to collect outstanding financial aid debts. Information may be collected as part of the assignment, processing, collection, and disposition of the account.

Technical Analysis

The FFEL System hardware and software are located at the VDC in Meriden, CT. CSC is under contract to maintain the hardware used to support the FFEL System software while Raytheon is under contract to provide production support of the software in Falls Church, VA. CSC in Fort Worth, TX is under contract to provide production scheduling for the FFEL System.

The components of the FFEL System reside in a single CICS region. The following statistics are based on calendar year 2000 data:

- ◆ Users - 4,011 users of the FFEL System made up of staff from Raytheon, Private Collection Agencies, Educational Credit Management Corp., DoED, Public Inquiry Contractors and the VDC.
- ◆ Technology Platform - IBM 3174 terminals connected to an IBM mainframe (9672/RB5) via an Ethernet LAN
- ◆ MIPS (Million Instructions Per Second) - 89 installed with average use of 55 per month
- ◆ DASD (Direct Access Storage Device) - 635 GB installed with an average usage of 333 GB
- ◆ Storage Devices - DASD IBM 33XX equivalent, TAPE IBM 34XX, and SUN mainframe SPARC 1000E Image Processor
- ◆ Operating Language - COBOL II, Assembler, JCL, DML, DYL-Audit, CULPRIT, IDMS (390 ver. 2.8) and Informix
- ◆ Libraries - 11 Development, 3 Staging and 6 Production containing source code, copybooks, JCL, Parameter members, and object codes for the system jobs and programs

A major output of the analysis effort was the Analysis and Inventory document. This section provides an overview of the four major FFEL components, when combined comprise 37 subsystems. Below is the summary analysis for each component:

- ◆ **The (GA) System** comprised 15% of the FFEL System programs and was completely migrated to FMS on September 30, 2000. **During our analysis the IPT confirmed that all the GA components could be retired from FFEL following the completion of the GA adjustment period.** The adjustment period is currently scheduled to end April 30, 2001.
- ◆ **The Lender System** comprises 17% of the FFEL System programs and is managed by the Financial Management area within FP. The IPT analyzed and documented the relationships between the Lender system, remaining FFEL components and the external users. **Based on our analysis, the IPT confirmed that MOST of the FFEL 799 related processes should be retired after migrating such functionality to FMS.** A definitive statement about ALL functionality should be deferred until the analysis for the Lender Payment Process Redesign effort is underway.
- ◆ **The Support System** comprises 21% of the FFEL System and is used to support both FP and Students/DCS owned subsystems. Two of these subsystems (Archive and Sub-ledger) are solely used by DMCS. **The IPT analyzed and documented the relationships between this system, and the GA and Lender systems.**
- ◆ **The DMCS** comprises 47% of the FFEL System. Of the 22 major subsystems within DMCS, 19 are active and 3 are inactive. The IPT identified and documented all DMCS jobs during the inventory effort.

There are 4 major technical dimensions of the FFEL System that are identified to provide an understanding of the relative size each major system comprises. These dimensions are the lines of code, number of jobs and number of batch and on-line programs of each major system within FFEL.

The FFEL System has a total of 1,022,882 Lines of Code, 1,045 Batch Programs, 822 Batch Jobs, 337 On-Line Programs, 703 Temporary Batch Jobs and 545 Temporary Batch Programs. The figures below illustrate the relative sizes of the major systems within the FFEL System.

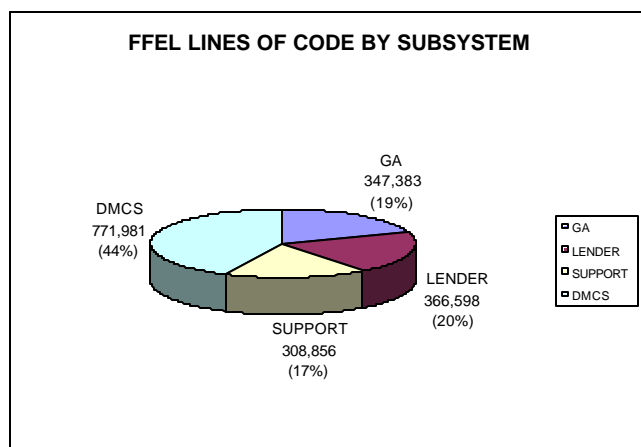


Figure 2: FFEL Lines of Code by Subsystem

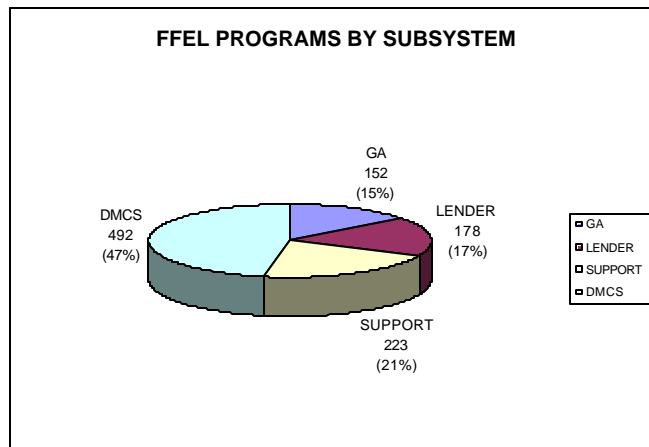


Figure 3: FFEL Programs by Subsystem

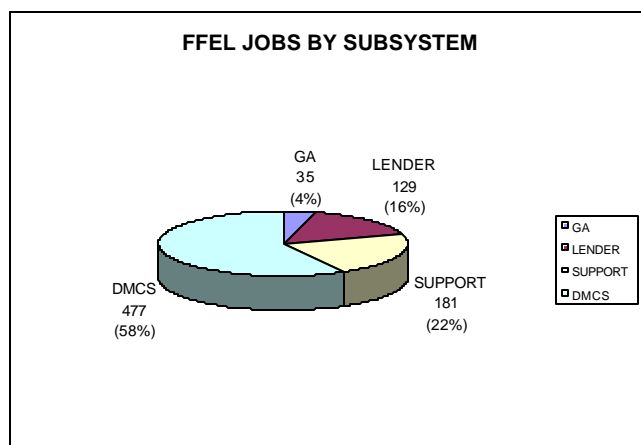


Figure 4: FFEL Jobs by Subsystem

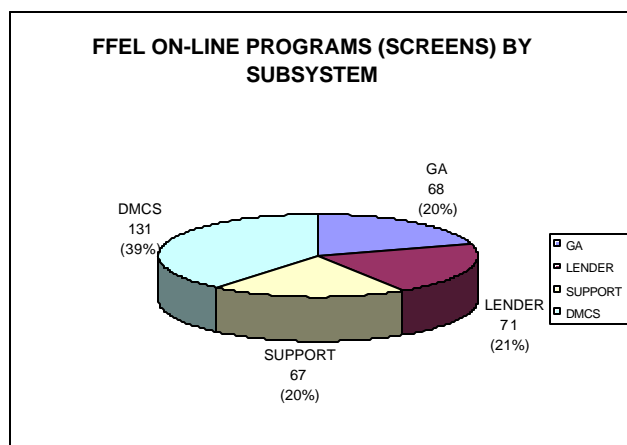


Figure 5: FFEL On-Line Programs by Subsystem

The FFEL System produces various reports. It also creates, transfers and receives data stored in Datasets and VSAM files through various interfaces with internal and external partners. The table below provides a summary of the reports, interfaces and data utilized within each system.

SYSTEM	Reports	Interfaces	Datasets	VSAM Files
GA	72	32	83	0
Lender	215	39	631	3
Support	184	36	523	14
DMCS	N/A	N/A	3064	18

Table 1: FFEL System Statistical Data

IV. BUSINESS ANALYSIS

Cost Analysis - Current

The cost analysis of the FFEL contract provides another dimension when examining the impact of retiring the FFEL System. The Fiscal Year 2000 cost expended on the current FFEL contract was obtained from invoices which were grouped into four schedules: Schedule A, B, C, and E. These schedules contain costs attributable to the FP Channel and the Students Channel. The costs associated with maintaining the DMCS portion of the FFEL System are associated with the Students Channel.

- ◆ Schedule A - represents costs related to manual processing of mail and performing data entry functions at the Student Loan Process Center and the National Processing Center in Greenville, TX. The costs associated with the Support System were allocated equally between the GA System and the Lender System.
- ◆ Schedule B - represents other direct costs related to the hardware, software, and supplies needed to conduct operations. These costs were also allocated proportionally between the GA System and the Lender System.
- ◆ Schedule C - represents costs for program development work by task order. Items that could not be identified as relating directly to the GA System or the Lender System were prorated equally between the systems.
- ◆ Schedule E - represents labor costs for key personnel used to maintain the system.

The costs attributable to the FFEL System operations at the VDC include the storage capacity for current and future data requirements and transactional processing for the job and programs located on the system. Table 2 summarizes the annual cost and allocation for the FP and Students Channel.

FY2000	Financial Partners	Students	Total
Schedule A	\$4,071,206.03	\$4,884,908.81	\$8,956,114.84
Schedule B	\$63,677.68	\$61,859.43	\$125,537.11
Schedule C	\$514,707.70	\$2,615,432.30	\$3,130,140.00
Schedule E	\$2,858,228.80	\$3,217,787.20	\$6,076,016.00
Sub-Total	\$7,507,820.20	\$10,779,987.75	\$18,287,807.95
FFEL VDC	\$2,395,200.00	\$2,395,200.00	\$4,790,400.00
Total	\$9,903,020.20	\$13,175,187.75	\$23,078,207.95

Table 2: FY 2000 FFEL System Contract Operating Costs

The allocation of costs between the FP and Students Channel in the area of Production Deliverables and VDC costs is not consistent with the findings of the analysis. The current allocation has been advantageous to the Students Channel throughout the current FFEL/Raytheon and VDC/CSC contracts. The projected costs and savings summary utilizes FY2000 invoices as a baseline, and it is assumed the current allocation of cost will continue into the future.

Cost Analysis - Projected

The IPT analyzed trends associated with the FFEL costs that point to continuous savings through FY03. Using cost data for previous years (i.e. FY99, FY98, etc.) and future years (i.e. FY01, FY02, etc.), the IPT confirmed that Raytheon contract costs will continue to decrease in FY01, FY02, and FY03 based on retiring FP components. In FY01 most of the savings (management, deliverables and development) will be tied to the deactivation of the GA subsystems and the decreased manual effort of processing GA forms at the Student Loan Processing Center (SLPC). The VDC costs increased by \$156,000 for FY01 based on 12 months of mainframe usage versus 11 months in FY00.

Raytheon contract costs for the Lender system will continue to decrease in FY02 from the reduction in management, deliverables and development costs. The costs associated with the Support system will be fully borne by the Students Channel along with some of the overhead costs associated with the Raytheon contract. The contract will be reviewed to ensure all overhead and management costs are not reallocated but are reduced with the retirement of the FP components of FFEL.

Based on this analysis and the fiscal year 2000 contract costs, the FP Channel will save \$27 million over 4 years by investing \$2.3 million in redesigning the Lender Payment Process and removing this transactional functionality from the VDC mainframe. SFA can save \$3 - 4 million annually (i.e. 30%-40%) by retiring the FFEL FP components. Our "cost saving" recommendations are dependent on:

- ◆ Migration of the Lender System functionality to FMS
- ◆ Retirement, replacement and retention costs associated with the FP FFEL components
- ◆ Determination of future FMS operating costs of the server
- ◆ Elimination of the manual functions and direct costs associated with the SLPC/NPC, and
- ◆ Determination of future VDC costs and restructuring the VDC mainframe costs.

The cost saving is derived from the difference between the current "As-Is" environment costs and the future "To-Be" environment costs. A detailed cost and savings analysis can be found in Appendix B. Below is a summary of the costs in Table 3.

	BY	BY+1	BY+2	BY+3	BY+4	
Fiscal Year	2001	2002	2003	2004	2005	TOTAL
"AS-IS" FFEL FP COSTS (a)	\$ 9,946,784	\$ 10,135,536	\$ 10,329,007	\$ 10,527,315	\$ 10,730,580	\$ 51,669,222
"TO-BE" FFEL/FMS FP COSTS (b)	\$ 11,015,896	\$ 7,442,274	\$ 1,550,000	\$ 1,550,000	\$ 1,550,000	\$ 23,108,170
*Projected Raytheon/VDC Costs	9,480,396	5,255,774	0	0	0	14,736,170
Lender Redesign (Development)	1,535,500	836,500	0	0	0	2,372,000
Support (Operations)	0	1,350,000	1,550,000	1,550,000	1,550,000	6,000,000
GROSS SAVINGS (a-b)	\$ (1,069,112)	\$ 2,693,262	\$ 8,779,007	\$ 8,977,315	\$ 9,180,580	\$ 28,561,052
**IMPACT TO STUDENTS CHANNEL COSTS (DMCS)	\$ -	\$ (1,398,434)	\$ (5,403,274)	\$ (5,502,427)	\$ (5,604,060)	\$ (17,908,195)
NET SFA SAVINGS (Potential)	\$ (1,069,112)	\$ 1,294,828	\$ 3,375,733	\$ 3,474,888	\$ 3,576,520	\$ 10,652,857

* The Projected Raytheon/VDC costs include savings based on reduced operating costs from the elimination of Development Task Orders for the GA and Lender Systems, and elimination of GA Deliverables due to the migration of the functionality to FMS.

** The Impact to Students Channel Costs is based on the allocation of specific FFEL FP costs (overhead, Support/Maintenance, etc.) to the Students Channel following the retirement of the FP components. This assumes DMCS continues to operate on FFEL.

Note: The increase in FY2001 "To-Be" cost is due to operating the FFEL System and FMS in parallel during the Development phase of the Lender Payment Process Redesign.

Table 3: "As-Is" Cost vs. "To-Be" Cost Analysis Summary

Recommendations

The IPT developed the recommendations after looking at the components of FFEL current and projected costs, focusing on two activities, migrating the functionality and retiring the components. The focus of these recommendations is to retiring the Financial Partners (FP) components of the FFEL System, specifically the GA and Lender Systems. The DMCS and the Support and Maintenance System were included in the Analysis and Inventory as a part of validating the FFEL System. The Students Channel will determine the final disposition of these systems. The timeline for the implementation of these recommendations is illustrated in Appendix C.

#1: Cease Operations of the GA Components of FFEL by June 2001

The FP Channel has completed its second quarter of operating the GA system in the FMS environment. All additional adjudication of FFEL System GA data will be completed by May 2001, and the batch jobs and programs for the GAF and GAQ subsystems can be removed from the production schedule. At this point, no additional deliverables, development or production support for the GA system will be required under the Raytheon contract.

#2: Re-compete the current Raytheon FFEL Contract by July 2001

The current Raytheon contract expires September 30, 2001 with the ability to initiate two 6 month extensions and a 3 month extension for a total of 15 months ending December 31, 2002. Under the current contract, several FP Channel and Student Channel charges are paid under the same invoice. The Financial Partners Channel COTR currently allocates the charges between the two channels. Re-competing the contract and associated Service Level Agreements will provide a means of separating the FP Channel costs from the Student Channel costs during and after the retirement of the FP components of FFEL. The Lender functionality contract should be established for the period of October 2001 through July 2002. The DMCS and Support/Maintenance functionality contract should be established for the period of October 2001 through July 2002. A separate support contract for the manual processes occurring at the NPC and the SLPC and utilized by both the FP Channel and the Students Channel should be developed for the period of October 2001 through July 2002 or the completion of the DCS reengineering effort. Projected cost savings may not be realized without separating and fully understanding the components of these contract costs.

#3: Re-structure the CSC VDC Contract by July 2001

The current VDC contract cost for the FFEL System mainframe operation evenly allocates costs between the FP Channel and the Students Channel. The metrics used to determine usage for the FFEL System are MIPS and DASD. The current contract should be restructured to allocate actual usage of MIPS (major cost driver) and DASD by the FP Channel, and should reflect the impact of retiring the FP components of FFEL. The total contract costs will be reduced due to the overall reduction in MIPS.

#4: Migrate Lender Functionality (799 Report) to FMS by April 2002

The FP Channel has received approval to proceed with the Lender Payment Process Redesign effort. To realize the costs savings indicated in the business plan, adherence to the projected schedule is a must. Without this due diligence the implementation timeframe may slip adding additional quarters to the schedule and reduce projected savings.

#5: Retire the GA and Lender Components of FFEL by July 2002

Once the FP Channel has completed the implementation of the Lender Payment Process Redesign effort, the FFEL System will continue to be available in the event the 799 Forms must be processed on this system. The costs associated with deliverables and development will be eliminated. FP must remain aggressive in its efforts to validate the operation of the new operating system. All additional adjudication of FFEL System Lender data will be completed by July 2002, and the batch jobs and programs for the GAF, GAQ, CLM, INT and SAL subsystems will be backed up to tape and deleted from the mainframe. At this point, no support for the GA or Lender system will be required under the Raytheon contract.

#6: Retain Historical Data at the VDC through July 2002

The requirements to access GA and Lender historical data for routine business operations vary widely among the users internal and external to SFA. There is also the issue of access due to official inquiries and audits. The accessing of data in the FFEL System will diminish as new data is obtained in the FMS environment. The FP Channel will maintain access to the GA and Lender historical data on the mainframe through the use of the current on-line screens for the duration of the DCS Reengineering effort. During this period, the FP Channel will perform a cost analysis for restoring the FFEL CICS region to establish a method for accessing FP components from back-up tapes at different locations (i.e., VDC, Iron Mountain, Comdisco, etc.) in preparation for removing active access to FFEL historical data from the VDC mainframe. The proper agreements will be developed so that the FP jobs and programs for the on-line screens operating in the FFEL CICS region of the mainframe can be removed from production. This will preclude any implications to the Students Channel when it is decided to shutdown DMCS operations on the mainframe.

#7: Complete the DMCS Reengineering Effort by July 2002

The total FFEL System retirement is contingent upon the retirement of the DMCS. With the final approval of the DMCS business case that was produced in parallel with this effort, it is in SFA's interests to commence the reengineering process as soon as possible in order to avoid additional contract costs and the inherent risks identified with the FFEL System.

V. RISK ASSESSMENT

Objective and Scope

The recommendations focus primarily on two areas – migrating Lender functionality to FMS and retiring the FP components of FFEL. The IPT defined the risks involved in completing and implementing the recommendations.

This analysis evaluates the probabilities and expected consequences for identified risks associated with the retirement of the GA and Lender sub-systems of the FFEL System. The underlying methodology used in this analysis is drawn from the Spectrum SDM model that utilizes the terminology and evaluation process recognized by the SRA (Society for Risk Analysis). It is necessary to understand the nature of unwanted, negative consequences to the continuation of business functions currently performed by the FFEL System in order to move forward with recommendations concerning the future of the GA and Lender business functions.

The key to the success of the retirement effort was the ability to accurately account for all of the system components so that business functions could be derived. The FFEL Retirement Inventory and Analysis identified six fundamental risks regarding the retirement effort. The inventory also identified two risks that impact the continued operation of the FFEL System.

Risk Factors and Criteria

The Inventory serves as the primary mitigating source for at least 6 of the identified risks. The ability of the inventory to completely mitigate these risks is impacted by the following systemic issues:

- ◆ Discrepancies between documentation and production libraries
- ◆ Presence of undocumented temporary modules in production libraries
- ◆ Absence of a validated list of configurable items
- ◆ Evidence of non-standard production processing
- ◆ Lack of an overall view of the database

Each risk was reviewed for characteristics and applied mitigation, and evaluated as to the potential for negative impact to SFA. The risks were assessed using the following criteria:

- ◆ Low – Little or no potential for adverse impact
- ◆ Medium – Some potential for adverse impact. Risks must be addressed at each stage of project operation.
- ◆ High – High and probable potential for adverse impact. Project operation must be suspended pending further risk mitigation.

Risk Analysis

The overall risk associated with migrating FP functionality from FFEL to FMS is low. When this functionality is migrated to FMS, the impact to the remaining FFEL systems is minimal. Risks in proceeding with the FFEL System retirement effort:

#1: SFA staff and external partners may not be able to perform current business functions.

Implications: A business function was not properly identified and/or validated.

Mitigation: FFEL System Analysis and Inventory identified and deconstructed the FFEL components in order to identify and validate business functions. This process and resulting inventory, reviewed and approved by a core group of analysts, technical specialists, end users, and client management, provide the assurance that subsequent analysis and development of GA and Lender business functions will be accurate. Existing FFEL System software will remain in the current production environment. A period of parallel processing will be included as part of the implementation of the new software. The parallel processing will provide additional assurance as to the integrity of all business functions.

Risk Assessment: Medium

#2: FP external partners may no longer have access to GA and Lender system interfaces, and would require interfacing with FMS for similar information.

Implications: A system interface such as an output file, deliverable report, or an input file was not properly identified.

Mitigation: FFEL System Analysis and Inventory also identified and deconstructed FFEL System components in order to identify and validate system interfaces. This process and resulting inventory, system maps and flowcharts, reviewed and approved by a core group of analysts, technical specialists, end users, and client management, provide the assurance that the FFEL System sub-system interfaces, both FFEL System internal and external, have been identified. Existing FFEL System software will not be immediately deleted from the current production environment. A period of parallel processing will be included as part of the implementation of the new software. The parallel processing will provide additional assurance as to the identification of all system interfaces.

Risk Assessment: Medium

#3: Some non-standard, unscheduled production jobs (temp) may be overlooked.

Implications: A number of undocumented temporary jobs, currently submitted to the production environment, may not be executed because all of the temporary jobs were not identified and reviewed.

Mitigation: FFEL System Analysis and Inventory identified and deconstructed FFEL System components in order to identify and validate business functions. Existing FFEL System software will not be immediately deleted from the current production environment. A period of parallel processing will be included as part of the implementation of the new software. The parallel processing will provide additional assurance as to the integrity of all business functions.

Risk Assessment: Medium

#4: Historical data still resident in FFEL may not be validated, accessible or easily recoverable.

Implications: SFA will be unable to recover past FFEL System transactions upon request and will be liable under Federal laws and regulations.

Mitigation: FFEL data currently in the FFEL system will remain in an unchanged state and will continue to be accessed through the on-line screens. The data will not be deleted or migrated to a different environment during the FFEL retirement effort.

Risk Assessment: Low

#5: Restoring the current FFEL system production environment may take more time.

Implications: Upon implementation of the redesigned GA and Lender functions, a critical failure is detected and the current system cannot be re-activated.

Mitigation: Existing FFEL System software will not be immediately deleted from the current production environment. Current FFEL System production will be discontinued after successful implementation of the re-designed sub-systems. This discontinuation of FFEL System production will be achieved by parameter modifications made to the production scheduling software. If it is necessary to re-activate current FFEL System software, the parameter modifications will be reversed. It will not be necessary to restore FFEL System production from backup tapes.

Risk Assessment: Low

#6: SFA may incur cost and liability from inefficient technical oversight of its system contracts.

Implications: The lack of consistent technical oversight creates an environment for non-compliance.

Mitigation: SFA will provide technical contract management oversight on all aspects of operations and development in order to reduce the exposure to contract non-compliance, liability and potential costs increases due re-verifying required contract obligations.

Risk Assessment: Medium

There is a considerable amount of inherent risk if the FP components are maintained on the current FFEL System. Risks in not proceeding with the FFEL System retirement effort:

#1: SFA may not be able to apply require system software upgrades (continue operations) or to upgrade/modify functionality (expand functionality).

Implications: Implementation of a later release of system software such as IDMS or CICS requires re-compilation of source programming which cannot be validated in the current environment. Changes to reflect changed business function requirements or new demands of business functions cannot be implemented because of the unknown potential negative impact to undocumented production.

Mitigation: FFEL System Analysis and Inventory identified and deconstructed FFEL System components in order to identify and validate system components and business functions.

Risk Assessment: Medium

#2: SFA may not be able to recover and restore system software to the previous state of functionality, if ported to a different mainframe environment (portability).

Implications: SFA may be unable to change vendors because there is no assurance that system functionality can be replicated in another environment.

Mitigation: Disaster recovery testing was performed on the FFEL System on July 6, 2000. Back-up tapes from the VDC in Meriden, CT, were read at the COMDISCO test site in North Bergen, NJ, to restore the FFEL System to full functionality. A complete validation of production environment functionality was not performed nor did the testing provide the necessary validation that the FFEL System can be ported to a different production environment.

Risk Assessment: Medium

VI. Next Steps

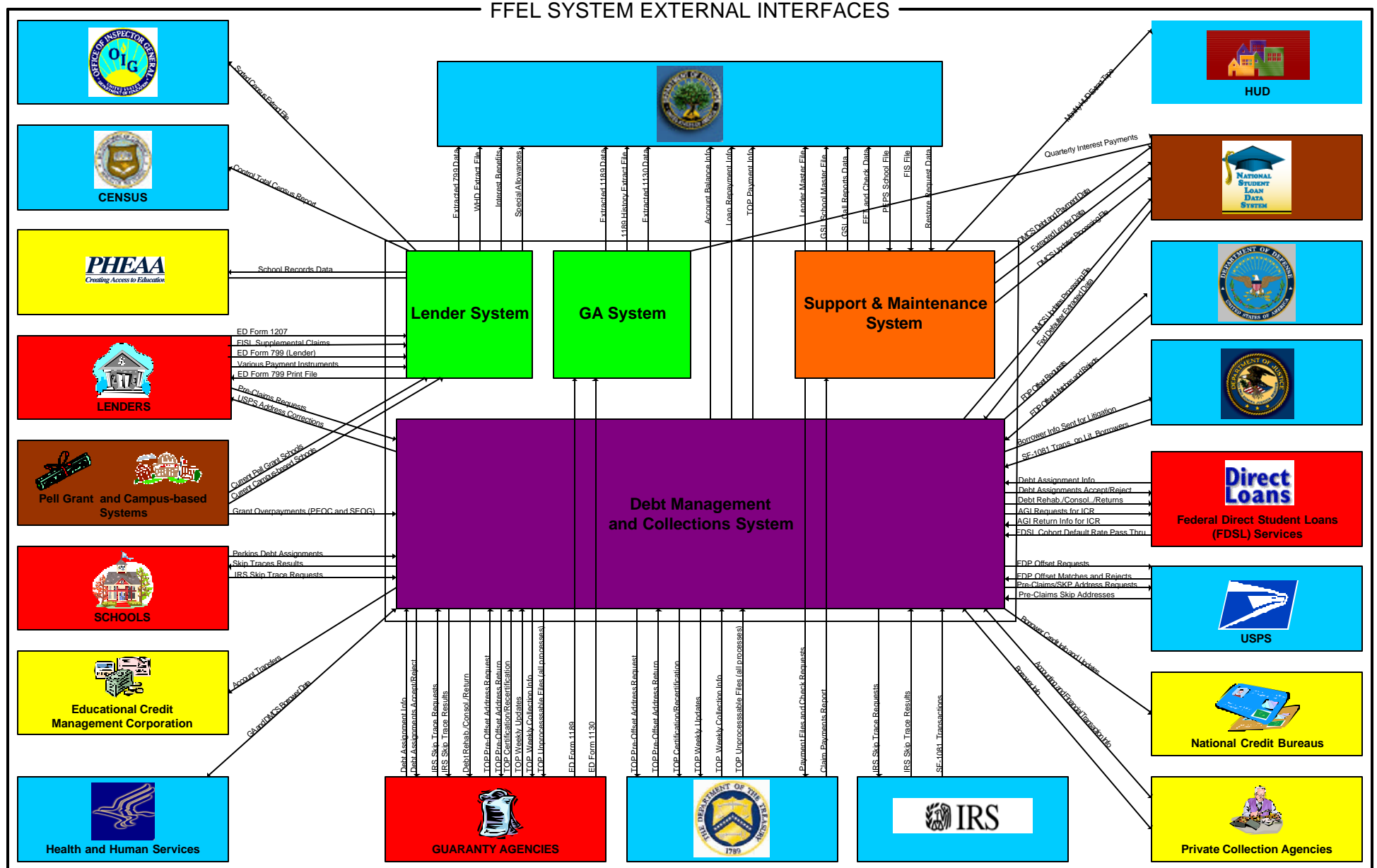
Retirement Plan for FP Components

The documents produced during this effort will be placed in the Project Management files located in the office of the FP General Manager. Access to the information will be available during the Lender Payment Process Redesign phase outlined in the Retirement Plan for the FP Components of the FFEL System. Below are the major steps outlined in the Retirement Plan:

- ◆ **IPT Setup** – establish the objective and purpose of the Lender Repayment Process Redesign effort, the composition of the team, the goals and tasks to be undertaken, and the schedule to complete each task within the given timeframe.
- ◆ **Analysis and Design** – design the web based process, planning and requirements analysis, functional and technical design, and conversion of required historical data.
- ◆ **Development and Testing** – build and test technology infrastructure, build and test lender web-based functionality, develop Census, NSLDS, PEPS, and other required interfaces.
- ◆ **Training and Implementation** – design human performance infrastructure, develop training, deploy business capability to Lenders, conduct beta tests and develop interfaces and reports.
- ◆ **Post Implementation Support** - retire Lender subsystem and determine the final disposition of historical data following the retirement of the FP components.

The IPT has completed the FFEL System retirement analysis effort with the production of an Analysis and Inventory of the FFEL System, Business Analysis and Risk Assessment including costs and recommendation, and the Retirement Plan for the FP components of FFEL. Based on this information, the FP Channel should be prepared to commence the next phase of work.

APPENDIX A: FFEL SYSTEM EXTERNAL INTERFACES



APPENDIX B: COST AND SAVINGS ANALYSIS

Fiscal Year	2001	2002	2003	2004	2005	TOTAL
"AS-IS" FFEL FP COSTS						
Raytheon	7,550,084	7,738,836	7,932,307	8,130,615	8,333,880	39,685,722
VDC	2,395,200	2,395,200	2,395,200	2,395,200	2,395,200	11,976,000
Telecommunications	1,500	1,500	1,500	1,500	1,500	7,500
TOTAL "AS-IS" FFEL FP COSTS (a)	\$ 9,946,784	\$ 10,135,536	\$ 10,329,007	\$ 10,527,315	\$ 10,730,580	\$ 51,669,222
"TO-BE" FFEL/FMS FP COSTS						
*PROJECTED RAYTHEON/VDC COSTS						
Lender System						
VDC Production Costs	1,197,600	898,200	0	0	0	2,095,800
Raytheon Operational Costs						
Deliverables	427,721	320,791	0	0	0	748,512
Development	79,207	0	0	0	0	79,207
Management	670,160	502,620	0	0	0	1,172,780
Telecommunications	1,500	1,125	0	0	0	2,625
Total Lender System	2,376,188	1,722,736	0	0	0	4,098,924
GA System						
VDC Production Costs	1,197,600	0	0	0	0	1,197,600
Raytheon Operational Costs						
Deliverables	21,525	0	0	0	0	21,525
Development	17,231	0	0	0	0	17,231
Management	433,380	0	0	0	0	433,380
Total GA System	1,669,736	0	0	0	0	1,669,736
FP Support/Maintenance System						
Raytheon Operational Costs						
Deliverables	1,135,066	851,300	0	0	0	1,986,366
Management	156,576	58,716	0	0	0	215,292
Total FP Support/Maintenance System	1,291,642	910,016	0	0	0	2,201,658
Other FP FFEL System						
Deliverables						
NPC	329,290	246,967	0	0	0	576,257
Support Services	1,745,089	1,308,817	0	0	0	3,053,906
Other Costs	390,204	292,653	0	0	0	682,857
Development						
Task / Work Orders	29,974	0	0	0	0	29,974
Other Costs	130,942	0	0	0	0	130,942
Ad-Hoc	63,678	47,759	0	0	0	111,437
Management	1,453,653	726,826	0	0	0	2,180,479
Total Other FP FFEL System	4,142,830	2,623,022	0	0	0	6,765,852
TOTAL RAYTHEON/VDC COSTS	9,480,396	5,255,774	0	0	0	14,736,170
LENDER REDESIGN (Development)						
Analysis and Design (1)	475,000	0	0	0	0	475,000
Development/Testing/Deployment (2)	862,500	287,500	0	0	0	1,150,000
Training (3)	0	90,000	0	0	0	90,000
Post Support (4)	0	90,000	0	0	0	90,000
FP FFEL System Retirement (5)	0	100,000	0	0	0	100,000
IV&V	125,000	100,000	0	0	0	225,000
Security Assessment	25,000	25,000	0	0	0	50,000
FMS (Development/Implementation) (6)	48,000	144,000	0	0	0	192,000
TOTAL LENDER REDESIGN	1,535,500	836,500	0	0	0	2,372,000
SUPPORT (Operations)						
FMS (Production / System Maintenance) (7)	0	400,000	600,000	600,000	600,000	2,200,000
Mainframe (Historical Data and Screens) (8)	0	150,000	150,000	150,000	150,000	600,000
Manual Operations (Processing Center) (9)	0	300,000	300,000	300,000	300,000	1,200,000
Help Desk Support (10)	0	500,000	500,000	500,000	500,000	2,000,000
TOTAL SUPPORT	0	1,350,000	1,550,000	1,550,000	1,550,000	6,000,000
TOTAL "TO-BE" FFEL/FMS FP COSTS (b)	\$ 11,015,896	\$ 7,442,274	\$ 1,550,000	\$ 1,550,000	\$ 1,550,000	\$ 23,108,170
GROSS SAVINGS (a-b)	\$ (1,069,112)	\$ 2,693,262	\$ 8,779,007	\$ 8,977,315	\$ 9,180,580	\$ 28,561,052
**IMPACT TO STUDENTS (DMCS) COSTS	\$ -	\$ (1,398,434)	\$ (5,403,274)	\$ (5,502,427)	\$ (5,604,060)	\$ (17,908,195)
NET SFA SAVINGS (Potential)	\$ (1,069,112)	\$ 1,294,828	\$ 3,375,733	\$ 3,474,888	\$ 3,576,520	\$ 10,652,857

APPENDIX B (continued): KEY ASSUMPTIONS

* The Projected Raytheon/VDC costs include savings based on reduced operating costs from the elimination of Development Task Orders for the GA and Lender Systems, and elimination of GA Deliverables due to the migration of the functionality to FMS.

** The Impact to Students Channel Costs is based on the allocation of specific FFEL FP costs (overhead, Support/Maintenance, etc.) to the Students Channel following the retirement of the FP components. This assumes DMCS continues to operate on FFEL.

General Assumption is the Raytheon and CSC (VDC) contracts will be renegotiated to address the changes in operational functions of the GA System from the mainframe to FMS.

Development Costs

1. Assumes the FP channel has some requirements already and will begin with current payment process/form and redesign to address new requirements. This would require an additional 8-10 week effort with 6-8 contractor FTE's.
2. Assumes the FP channel will provide the FMS team with Lender business and functional, conversion, interface and reporting requirements.
3. Assumes 8-10 weeks of FMS/Oracle-based user training provided requiring 1 contractor FTE.
4. Assumes 8-10 weeks of post-implementation support requiring 1 contractor FTE.
5. Assumes 3-4 weeks of 2-3 contractor FTE's to de-convert/shutdown the FFEL (FP) System.
6. Assumes the shared use of an L-Class development server at the VDC.

Operational Costs

7. Assumes the use of a Financial Partners dedicated V-Class application server and S/W at \$48,000/month plus \$12,000/year for the associated DASD.
8. Assumes the use of 150 GB's of DASD at a cost of \$1,000/GB for the GA and Lender historical data located on the mainframe at the VDC.
9. Assumes 2-3 FTE contractor resources to support the continual manual processing functions.
10. Assumes 2-3 FTE contractor resources to support the continual Help Desk functions for the GA and Lenders using the FMS application.

APPENDIX C: FFEL SYSTEM RETIREMENT TIMELINE

